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We kindly call the attention of our contributors to the following: In making diagrams, draw them on white unruled paper and attach the same to the solution. Also, please, draw the diagram on as small a scale as possible, the large cuts being more expensive.

George B. Halsted, A. M.,(Princeton);Ph. D., (Johns Hopkins University), Professor of Mathematics in the University of Texas, has kindly consented to contribute a series of articles on Non-Euclidean Geometry, in future numbers of the Monthly. These articles alone will be worth many times the cost of the Journal, as Professor Halsted is recognized as one of the ablest expounders of the Non-Euclidean doctrine in the world.

Robert J. Aley, A. M., Professor of Mathematics in the University of Indiania, showed his appreciation of the Monthly by sending us the first club of fourteen subscribers.

Superintendent J. M. Greenwood, of Kansas City, Missouri, seems to have had great faith in The American Mathematical Monthly from the first; for no sooner did he receive our circular sent out in November than he immediately remitted, being the first to give the Monthly financial encouragement.

The American Mathematical Monthly is a fixed fact. We trust our friends will exert themselves to make it a financial success by securing new subscribers for us. Let each of our subscribers secure us a club of 10, yes even 1 new subscriber, and then we will soon be free from any anxiety of material loss in the publication of the Monthly.

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BOOKS AND PERIODICALS.

Algebraische Gleichungen nebst den Resultaten und den Methoden zu ihrer Aufloesung. (Algebraic Equations with answers and methods of solution). by Dr. Ernst Bardy, Leipzig, 1893. Octavo, 378 pages.

This is the fourth edition of a well known German solution book for the use of teachers. It contains exactly one thousand exercises,all of which lead to a final quadratic equation. There are 492 examples involving one unknown quantity, 394 including two, and 114 embracing three or four unknowns. Answers are stated in all cases, and solutions of the more difficult exercises. Many special devices showing much engenuity on the part of the author are given, but it is a question if some examples are not of a nature to involve a great waste of time on the part of scholars. The following is one of the more difficult exercises:

$$\frac{y(1+x^2)}{x(1+y^2)}=a \qquad \frac{y^4(1+x^8)}{x^4(1+y^8)}=b$$

and the solution gives the results,

$$x=\tfrac{1}{2}(a\sqrt{u}+\sqrt{a^2u-4}) \quad y=\tfrac{1}{2}(\sqrt{u}+\sqrt{u-4})$$

in which u is a function of a and b which we leave to be deduced by young algebraists who are interested in problems of this kind. *Mansfield Merriman.*

Elementary Synthetic Geometry of the Point, Line, and Circle in the Plane. By N. F. Dupuis, M. A., F. R. S. C., Professor of Mathematics in the University of Queen's College, Kingston, Canada. 16 mo, cloth, 296 pp. Price, $1.10. New York: Macmillan & Co.

This work differs from the majority of treatises on Geometry in that it systematically paves the way for the study of Cartesian Geometry. The point, the line, and the curve lying in a common plane are taken as the geometric elements of Plane Geometry, and any one of these or any combination of them is defined as a geometric plane figure. The book is divided into five parts. Part I. treats of lines,angles, triangles, parallels, and the circle; Part II. treats of comparison of areas, measurements of areas, geometric interpretation of Algebric forms, areal relations, and squares and rectangles; Part III. treats of proportion amongst line-segments, functions of angles and their applications in geometry; Part IV. treats of geometric extensions, centre of mean position,colinearity and concurrence,inversion and inverse figures, pole and polar, radical axis, centers and axes of perspective or similitude: Part V. treats of anharmonic division, harmonic ratio, anharmonic ratio. polar reciprocals and reciprocation, homography and involution. Parts I. and II., each conclude with Constructive Geometry in which the preceding principles are applied to numerous interesting and well selected problems. In this geometry, are demonstrated a number of propositions not found in many other treatises on geometry. We do not hesitate to pronounce it a very fine work and teachers who are contemplating a change of texts in elementary geometry will do well to examine this little book before making a selection. B. F. F.

Complete Graded Arithmetic, Part Second, for Sixth, Seventh, and Eighth Grades. By George E. Atwood. 8vo, half leather back, 382 pp. Price,—Boston: D. C. Heath & Co

This arithmetic, which has just been issued, is one of the best that has yet appeared, for common and graded school work. It is abundantly supplied with well chosen problems, each one requiring the exercise of different powers of the mind. So many authors, in stating problems, have a frame-work of words in which at certain places numbers are inserted and thus their different problems are enunciated. This mistake Mr.Atwood has happily avoided.

The definitions and rules are resigned to the close of the book. This, to my mind, is an objection, but, by many teachers, this feature of the book will be highly appreciated. B. F. F.

A Manual of Land Surveying, comprising an Elementary Course of Practice with Instruments and a Treatise upon the Survey of Public and Private Lands, prepared for the use of Schools and Surveyors, by F. Hodgman, M. S., C. E.,Practical Surveyor and Engineer, and C. F. R. Bellows, M. A., C. E., Professor of Mathematics in the Michigan State Normal School. Fifth Edition, Revised by F. Hodgman,374 pp. + 112 pp. of tables. Price, $2.50. F. Hodgman, Climax, Michigan, 1891.

Besides treating satisfactorily the subjects usually considered in elementary works on Surveying, the book before us recognizes the fact that in a much larger part of the U.S.,land surveys are made upon the U.S. land system, and aims to supply that which text-books are deficient in by discussing very fully U. S. Land Surveys and the many perplexing questions of practice arising under them.

The rules which govern resurveys are given a prominent place and the decisions of the highest courts are fully quoted on all important points relative to surveys. This is a special feature of this work.

The general problem of correcting a random line of several courses between two known points, in order to reproduce the original location of the line is given in this manual. The problem arises in retracing meander lines, highway lines, boundaries of irregular tracts of land, and in all similar cases, and is of great practical importance, and yet few if any works on surveying make any reference to it. Land surveyors will appreciate the practical character of this work. To better fit it for a book of reference on the field it is brought within convenient pocket size by closely printing it on thin tough paper, with narrow margins. It is bound in flexible morocco with flaps. J. M. C.

Elementary Synthetic Geometry. By George Bruce Halsted, A. B., A. M., and ex-Fellow of Princeton College; Ph.D., and ex-Fellow of Johns Hopkins University; Professor of Mathematics in the University of Texas. Second edition, 1893. 8vo, cloth. Price, $1.50. New York: John Wiley & Sons.

For originality of treatment and logical arrangment, this work is superior to any other geometry in the language; it is geometry in a nut-shell. Dr. Halsted's introduction of new terms in the language of geometry is highly commendable, as such terms as *sect*, *straight*, *steregon*, etc., have become an absolute necessity to the progressive and logical teacher of geometry. An examination of the work is necessary in order to appreciate all its merits. B. F. F.

The Maine Farmers' Almanac, Charles E. Nash, Augusta, Maine, contains, besides the *calendar* and other interesting matter, a Puzzle Department and a Mathematical Department. The number for 1894 contains solutions to the four questions proposed last year and six new ones are proposed for the next number.

The Journal of Education, one of the leading weekly Journals for teachers, has an interesting Mathematical column in one issue of each month conducted by F. P. Matz, Ph. D., of Reading, Pennsylvania. In the issue of January 28, four interesting problems are solved.

The School Visitor, John S. Royer, Editor, Versailles, Ohio, enters upon its 15th volume. The January number contains solutions to 7 problems and a list of 17 very interesting problems are given for solution in future issues.

We are duly thankful for Professor Royer's kind reference to the MONTHLY.

The Educational Times, London, England, for January, has the usual amount of valuable sholastic matter and maintains the strength of its Mathematical Department. Fourteen problems are solved, and 36 new ones proposed. We are pleased to exchange with this valuable periodical.

Problem 12186 is from our valued contributor, Professor Zerr.

The Kansas University Quarterly for January, 1894, is at hand. The following is the Table of contents:

Report on Field Work in Geology by Erasmus Haworth, M. E. Kirk, and W. H. H. Platt. A Geological Reconnoissance in Southwest Kansas and No Man's Land by E. C. Case; Traces of a Glacier at Kansas City, Missouri, by E. C. Case; New Genera and Species of Dolichopodidæ, by J. M. Aldrich; and Descriptions of North American Trypetidæ with Notes. Part I. by W. A. Snow.

No Mathematical papers are given in this number.

Annals of Mathematics for January, 1894, contains several very interesting articles, as follows:

A Construction for the Imaginary Points and Branches of Plane Curves, by F. H. Lond; The Screw as a Unit in a Grassmanian System of the Sixth Order, by E. W. Hyde; On the Theory of Functions of a Complex Variable, by W. H. Echols; Ziwet's Mechanics, by W. M. T.; Rules for the Algebraic Signs of Hyperbolic Formulae, by G.

Nacloskie; On the Descending Series for Bessel's Functions of both kinds, by James McMahon; An Elementary Deduction of Taylor's Formulae, by W. H. Echols; On Gauss's Method of Elimination, by Asaph Hall. One problem is proposed.

The Bulletin of the New York Mathematical Society for January, has for its leading Article, Modern Mathematical Thought by Professor Simon Newcomb. The other article is Recent Researches in Electricity and Magnetism, by Lieutenant Geo. O. Squier, U. S. A. Notes, and New Publications, fill the last pages. J. M. C.

Several Notices of books and pamphlets intended for this number will appea in the March issue.

Miscellaneous Notes and Queries, a Monthly Magazine of History, Folk-Lore, Mathematics, Mysticism, Art, Science etc., published by S. C. and L. M. Gould, Manchester, New Hampshire, edited by S. C. Gould. Price, $1.00 per year.

We have received the February and March numbers of this Monthly and find it truly full of things curious, quaint and olden, entering into every branch of science, literature, and art. It is a store-house of information to the student desiring many things from many sources. H. C. F.

Education, a Monthly Magazine devoted to the Science, Art, Philosopy, and Literature of Education, published by Kasson & Palmer, 50 Broomfield Street, Boston. Price, $3.00.

The January number of *Education* is before us and presents an entertaining and instructive table of contents,consisting of Secondary Education of Girls in France. A very strong paper on The Unconscious Element in Dicipline, by Henry S. Baker of St Paul, Minnesota. Every one who has made the subject a study will agree that Mr. Baker has touched the key note of discipline in school government. Another especially interesting article is on Western Reserve University, by Emerson O. Stevens, Cleveland, Ohio. Other features are Drawing in General Education, Shortened Writing, State University Library Work, Editorials, Echoes from the Exposition, Department of Professional Study, Foreign Notes, Among the Books, and Periodicals. This Magazine is international in its scope and therefore commends itself to the liberal educator. H. C. F.

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ERRATA.

Vol. I., No. 1., p. 11, for John L. Lyle, Westminister College, read John N. Lyle, Westminster College.

p. 13, for Long Branch Depot, read North Branch Depot.

p. 19, solution to problem 2, step 2, for $\frac{5}{6}=\frac{5}{6}\times\frac{11}{11}=\frac{11}{\frac{55}{6}}=\frac{11}{9\frac{1}{6}}$ read $\frac{5}{6}=\frac{11}{11\div\frac{5}{6}}=\frac{11}{\frac{66}{5}}=\frac{11}{13\frac{1}{5}}$.

p. 21, first line in solution for opperations, read operations.

p. 23, problem 7, last line, for $(y-2mn)^2$, read $(y-2\,am)^2$.

p. 25, problem 3, for *total length swept over*, read total area swept over.